



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/720,650

11/24/2003

Lynne C. Eigler

BA1-03-1495 (03-1495)

1756

7590

01/26/2006

Robert R. Richardson

PO BOX 2677

Silverdale, WA 98383-2677

EXAMINER

VERBITSKY, GAIL KAPLAN

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,650

Applicant(s)

EIGLER ET AL.

Examiner

Gail Verbitsky

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 4, 9-10, 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Bourgade at al. (U.S. 4765749) [hereinafter Bourgade].

Bourgade discloses in Fig. 2 an IR calorimeter 20 comprising a body (absorbing element) 2, a temperature sensor (thermopile/ plurality of thermopiles/ plurality of thermocouples) 10 attached over a substantial portion of the body 2, the temperature sensor 10 is configured to sense a temperature change in a substantial portion of the body 2 responsive to absorption of a captured radiation, a non-aqueous cooling system (heat sink) 12 configured to cool the body 2 from the temperature excessively elevated as the result of absorption of the captured radiation. Wires 14 and 16 lead to a processing device which process signals from the thermopile 10 and a resistance wire 8 (which is attached/ part of the temperature sensor 10) respectively to, inherently, convert the thermopile signals in temperature and to apply energy to the resistance 8. For claims 2, 4: the temperature sensor 10 also comprises a resistor/ resistance wire 8 being attached and in thermal communication with the body 2 and used for calibration of the calorimeter (and also acting as a heater). Thus, it is inherent, that there is a detector to detect resistance of the wire 8 during calibration.

The method steps will be met during the normal operation of the device stated above.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1–2, 4, 6-8, 10, 15-17, 19, 31-33, 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betzler et al. (U.S. 4687342) [hereinafter Betzler].

Betzler discloses in Figs. 1-2, 13 a device in the field of applicant's endeavor comprising an absorbing body 3, a resistor layer 4 (as a part of the Wheatstone bridge) attached over a substantial portion of the body 3 in thermal communication (through the metal carrier foil 1) with the body 3 and being configured to detect a change in temperature of the substantial portion of the body responsive to an IR absorbed/ captured by the body. The device comprises a detector (Wheatstone) configured to detect the resistance of the resistor 4 and a processing device (radiation measuring device/ multimeter) 10 having a (first) component, inherently, configured to measure the radiation/ temperature corresponding to the resistance of the resistor 4 (col. 6, lines 52-68). The device further comprises a dissipater (non-aqueous heat sink/ cooling device) 11. As shown in Fig. 13, the power deriving from the temperature change and resulting measurable resistance change of the resistor. This would imply, that the processing

device comprising another (second) component to derive the power corresponding to the admitted/ absorbed radiation.

With respect to the preamble of claims 1, 15: the preamble of the claims does not provide enough patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and a portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. Kropa v. Robie, 88 USPQ 478 (CCPA 1951).

The method steps will be met during the normal operation of the device stated above.

5. Claims 3 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgade.

Bourgade discloses the device as stated above in paragraph 2.

Bourgade does not teach that the wire includes enamel coated cooper wire, as stated in claim 3.

With respect to claim 3: the use of the particular material, i.e., enamel coated cooper wire, as stated in claim 3, for the temperature measuring resistance, absent any criticality, is only considered to be the "optimum" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the temperature measuring resistance, disclosed by Bourgade, since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

With respect to claim 14: having a plurality of heaters, absent any criticality, is only considered to be an obvious modification of the system disclosed by Betzler. While the addition of multiple heat exchangers to the concept of Betzler undoubtedly makes the invention more useful with a plurality of heat exchangers, it is not the type of innovation for which a patent monopoly is to be granted. See In re St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7th Cir. 1977).

6. Claims 14, 37-38, 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgade in view of Domen (U.S. 3665762).

Bourgade discloses the device as stated above in paragraph 2.

Bourgade does not teach all the limitations of claims 14, 37-38, 42-44.

Domen discloses in figs. 1-5 a calorimeter 10 comprising a body (core) 12 of a given heat capacity for absorbing radiation energy from a sample (radiation beam), a first temperature sensor (thermistor/ resistance wire) 22 attached to said body, a second temperature sensing means (thermistor) 24 to sense temperature of a jacket, a calibrating element (heating resistor/ thermistor/ first electrical heater) 26 attached to the body 12, while the thermistor 24 can act as a temperature sensor and a second heater for the jacket (col. 2, lines 69-71). The device can comprise a thermally regulated medium (heat sink/ cooling medium) surrounding the device.

For claim 42: Domen calibrates for the thermal (heat) capacity of the body, as shown in col. 7. The calibration mode includes heating (cooling) the body to a predetermined temperature wherein a final value of the temperature for heating is an initial value of the temperature for cooling (col. 7, lines 16-25).

For claim 37: by the definition of the thermistor, the resistance of the thermistor is correlated to the temperature measured by the thermistor,

For claim 38: as the temperature of the body rises as the result of an external source of energy (radiation beam), the temperature of the thermistor 22 changes (col. 3, lines 20-25) and detected by a Wheatstone bridge (detector).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the temperature sensor (thermopile), disclosed by Bourgade, with the thermistor (resistor), as taught by Domen, because both of them are alternate types of temperature measuring devices which will perform the same function of sensing the temperature of the body, if one is replaced with the other.

With respect to claim 44: having a plurality of heaters, absent any criticality, is only considered to be an obvious modification of the system disclosed by Bourgade. While the addition of multiple heat exchangers to the concept of Flores undoubtedly makes the invention more useful with a plurality of heat exchangers, it is not the type of innovation for which a patent monopoly is to be granted. See In re St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7th Cir. 1977).

The method steps will be met during the normal operation of the device stated above.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgade and Domen, as applied to claims 14, 37-38, 42-44 above, and further in view of Refalo et al. (U.S. 6572263) [hereinafter Refalo].

Bourgade and Domen disclose the device as stated above in paragraph 6.

They do not explicitly teach a multimeter.

Refalo discloses a device in the field of applicant's endeavor whose processing device comprising a digital multimeter to acquire a temperature and a power data.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Bourgade and Domen, so as to have a digital multimeter performing all the calculating functions, as taught by Refalo, so as to fast and accurately calculate the power, calibrate the device, and display data on a digital display, as well known in the art.

8. Claims 5-8, 15-18, 23-25, 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgade and Domen, as applied to claims 14, 37-38, 42-44 above, and further in view of Argenti (U.S. 20030099276).

Bourgade and Domen disclose the device as stated above 6.

They do not explicitly teach a digital multimeter/ processor, a second component, as stated in claims 5-8, 15-17, and the remaining limitations of claims 5-8, 15-18, 24-25, 38-39.

Argenti discloses in Fig. 1 a device for measuring a power (calorimeter) of a laser beam, the device comprising an absorbing body (mass) 2 of a known heat capacity, temperature sensors (thermocouples) 10 and 11 connected to a detector being a microprocessor (inherently, including a digital multimeter) which manages both power acquisition and power calculation algorithm and display a signal indicative of the power. This would imply, that the microprocessor comprises all the components (first, second, etc.) necessary for converting measured temperature indicative signal into a temperature and converting the temperature into the power (in watts) of the laser beam.

Please note, that it is known that **Watt= Joule/ time**, therefore, it is inherent that, in order to indicate power in watts, the microprocessor should divide energy by time.

Argenti teaches (paragraph [0039]) to cool the device, in a broad sense, suggesting a cooling system to cool the body from the temperature elevated.

For claim 18: temperature sensors are two (plurality) thermocouples 10 and 11.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Bourgade and Domen, so as to have a microprocessor performing all the controlling and calculating functions, as taught by Argenti, so as to fast and accurately calculate the power, calibrate the device, and display data on the display, as well known in the art.

With respect to claim 25: having a plurality of heaters, absent any criticality, is only considered to be an obvious modification of the system disclosed by Bourgade and Domen. While the addition of multiple heat exchangers to the concept of Bourgade and Domen undoubtedly makes the invention more useful with a plurality of heat exchangers, it is not the type of innovation for which a patent monopoly is to be granted.

See In re St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7th Cir. 1977).

With respect to claim 24: the use of the particular material, i.e., enamel coated copper wire material, as stated in claim 24, for the wire, absent any criticality, is only considered to be the "optimum" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the probe element disclosed by Bourgade and Domen since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to

select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

The method steps will be met during the normal operation of the device stated above.

9. Claims 11-12, 26-29, 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgade in view of Vogel (U.S. 587611).

Bourgade discloses the device as stated above in paragraph 2.

Bourgade does not explicitly teach that the cooling device is a system including a plurality of channels in thermal communication with the body and being connectable to a source of a gas, as stated in claims 11-12, 26-29, and 34-35.

Vogel discloses in Fig. 1 a device in the field of applicant's endeavor wherein, a cooling system comprises a plurality of channels 40, 48, etc. in thermal communication with a body (sample) 24 and connected to a source of a gas 62.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Bourgade, so as to replace the cooling system/ heat sink of Bourgade with a cooling system comprising a plurality of gas containing channels, as taught by Vogel, because both of them are alternate types of cooling system which will perform the same function, of removing/ regulating heat from the calorimeter, if one is replaced with the other.

With respect to claims 12 and 28-29: using a gas that includes a gaseous nitrogen as a coolant substance, as stated in claims 12, 29, or an inert gas, as stated in claims 28-29, absent any criticality, is only considered to be the "optimum" material/ substance that a person having ordinary skill in the art at the time the invention was

made using routine experimentation would have found obvious to provide for the cooling system disclosed by Bourgade since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

The method steps will be met during the normal operation of the device stated above.

10. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgade, Domen and Argenti as applied to claims 5-8, 15-18, 24-25, 38-39 above, and further in view of Vogel (U.S. 587611).

Bourgade, Domen and Argenti disclose the device as stated above in paragraph 8.

They do not explicitly teach that the cooling device is non-aqueous system including a plurality of channels in thermal communication with the body and being connectable to a source of a gas, as stated in claims 19-21.

Vogel discloses in Fig. 1 a device in the field of applicant's endeavor wherein, a cooling system comprises a plurality of channels 40, 48, etc. in thermal communication with a body (sample) 24 and connected to a source of a gas 62.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Bourgade, Domen and Argenti, so as to have a cooling system comprising a plurality of gas containing channels, as taught by Vogel, because such a cooling system is very well known in the art.

With respect to claim 21: using a gas that includes a gaseous nitrogen, as a coolant substance, as stated in claim 21, absent any criticality, is only considered to be the "optimum" material/ substance that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the cooling system disclosed by Bourgade, Domen and Argenti since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

11. Claims 13, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgade in view of Fricke (U.S. 3508056).

Bourgade discloses the device as stated above in paragraph 2.

Bourgade does not explicitly teach that the cooling device is a water (aqueous) coolant, as stated in claims 13, 36.

Fricke discloses in Fig. 1 a device in the field of applicant's endeavor wherein; a heat sink 10 is a water (aqueous) coolant.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Bourgade, so as to have an aqueous cooling system, as taught by Fricke, because such a cooling system is very well known in the art, and, thus, would have lower manufacturing costs by using a well known structure.

12. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgade, Domen and Argenti, as applied to claims 5-8, 15-18, 24-25, 38-39 above, and further in view of Fricke (U.S. 3508056).

Bourgade, Domen and Argenti disclose the device as stated above in paragraph 8.

They do not explicitly teach that the cooling device is a water (aqueous) coolant, as stated in claim 22.

Fricke discloses in Fig. 1 a device in the field of applicant's endeavor wherein; a heat sink 10 is a water (aqueous) coolant.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Bourgade, Domen and Argenti, so as to have an aqueous cooling system, as taught by Fricke, because such a cooling system is very well known in the art, and, thus, would have lower manufacturing costs by using a well known structure.

The method steps will be met during the normal operation of the device stated above.

13. Claims 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgade in view of DiGiovanni et al. (U.S. 6513994) [hereinafter DiGiovanni].

Bourgade discloses the device as stated above in paragraph 2.

Bourgade does not explicitly teach the limitations of claims 40-41.

DiGiovanni teaches in Fig. 3 a device/ calorimeter having a heat absorbing (heat sensing) element 34 with a thermal resistance of a cooper wire R and thermocouples 36 attached at different points of the absorbing element 34 to detect a heat flow along a

portion of the element 34 (col. 3, lines 52-63). When, in the beginning, the device is calibrated, the calorimeter and a source of energy (fiber laser) are brought into equilibrium; the equilibrium is, inherently, sensed by the thermocouples detecting a steady state with no heat flow.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Bourgade, so as to determine when the body reaches a thermal equilibrium condition, as taught by DiGiovanni, so as to determine a moment when the temperature is to be measured and converted in a power, in order to achieve more accurate power measurements in a steady state condition.

The method steps will be met during the normal operation of the device stated above.

14. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betzler.

Betzler discloses the device as stated above in paragraph 4.

Betzler does not explicitly teach the limitations of claims 24-25.

With respect to claim 25: having a plurality of heaters, absent any criticality, is only considered to be an obvious modification of the system disclosed by Betzler. While the addition of multiple heat exchangers to the concept of Betzler undoubtedly makes the invention more useful with a plurality of heat exchangers, it is not the type of innovation for which a patent monopoly is to be granted. See In re St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7th Cir. 1977).

With respect to claim 24: the use of the particular material, i.e., enamel coated copper wire material, as stated in claim 24, for the wire, absent any criticality, is only considered to be the "optimum" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the probe element disclosed by Betzler since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

15. Claims 5 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betzler in view of Refalo et al. (U.S. 6572263) [hereinafter Refalo].

Betzler discloses the device as stated above in paragraph 4.

Betzler do not explicitly teach that the multimeter is a digital multimeter.

Refalo discloses a device in the field of applicant's endeavor comprising a digital multimeter to acquire a temperature and a power data.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Betzler, so as to have a digital multimeter performing all the calculating functions, as taught by Refalo, so as to fast and accurately calculate the power, calibrate the device, and display data on a digital display, as well known in the art.

16. Claims 11-12, 20-21, 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betzler in view of Vogel (U.S. 587611).

Betzler discloses the device as stated above in paragraph 4.

Betzler does not explicitly teach that the cooling device is non-aqueous system including a plurality of channels in thermal communication with the body and being connectable to a source of a gas, as stated in claims 11-12, 20-21, and 34-35.

Vogel discloses in Fig. 1 a device in the field of applicant's endeavor wherein, a cooling system comprises a plurality of channels 40, 48, etc. in thermal communication with a body (sample) 24 and connected to a source of a gas 62.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Betzler, so as to have a cooling system comprising a plurality of gas containing channels, as taught by Vogel, because such a cooling system is very well known in the art.

The method steps will be met during the normal operation of the device stated above.

17. Claims 13, 22 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betzler in view of Fricke (U.S. 3508056).

Betzler discloses the device as stated above in paragraph 4.

Betzler does not explicitly teach that the cooling/ dissipating device is a water (aqueous) coolant, as stated in claims 13, 22 and 36.

Fricke discloses in Fig. 1 a device in the field of applicant's endeavor wherein; a heat sink 10 is a water (aqueous) coolant.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Betzler, so as to have an aqueous cooling system, as taught by Fricke, because such a cooling system is very well known in the art, and, thus, would have lower manufacturing costs.

18. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgade and Vogel as applied to claims 11-12, 26-29, 34-35 above, and further in view of Friske.

Bourgade and Vogel disclose the device as stated above in paragraph 9.

They do not explicitly teach that the cooling device is a water (aqueous) coolant, as stated in claim 30.

Fricke discloses in Fig. 1 a device in the field of applicant's endeavor wherein; a heat sink 10 is a water (aqueous) coolant.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Bourgade and Vogel, so as to have an aqueous cooling system, as taught by Fricke, because such a cooling system is very well known in the art, and, thus, would have lower manufacturing costs by using a well known structure.

The method steps will be met during the normal operation of the device stated above.

19. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Betzner and Vogel as applied to claims 11-12, 26-29, 34-35 above, and further in view of Friske.

Betzner and Vogel disclose the device as stated above in paragraph 16.

They do not explicitly teach that the cooling device is a water (aqueous) coolant, as stated in claim 30.

Fricke discloses in Fig. 1 a device in the field of applicant's endeavor wherein; a heat sink 10 is a water (aqueous) coolant.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Betzner and Vogel, so as to have an aqueous cooling system, as taught by Fricke, because such a cooling system is very well known in the art, and, thus, would have lower manufacturing costs by using a well known structure.

The method steps will be met during the normal operation of the device stated above.

Response to Arguments

1. Applicant's arguments filed on November 09, 2005 have been fully considered but they are not persuasive.

Applicant states that in Bourgade the thermopile occupies 20 % of the body unlike in the instant invention the thermopile occupies a substantial portion of the body. This argument is not persuasive because the thermopile 10 and the wire 8 which is attached/part of the temperature sensor totally occupy a substantial portion of the face 9 of the body 2, as shown in Fig. 2.

Applicant states that Beltzer discloses a device with small dimensions of the detector, that Beltzer does not teach a temperature sensor occupying a substantial portion of the body and in thermal communication with the body. This argument is not persuasive because, in Fig. 1, Beltzer shows a body 3, a temperature sensor/ resistor 4 occupying the same area underneath of the body, and being in thermal communication with the body by means of a conductive foil 2. Therefore, all combinations that include the

Bourdade and Beltzer references respectively, teach the temperature sensor occupying the substantial portion of the body.

Applicant states that Bougade teaches a plurality of thermopiles but not a thermocouple or plurality of thermocouples. This argument is not persuasive, because by definition, the thermopile is a plurality of interconnected thermocouples.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gail Verbitsky whose telephone number is 571/ 272-2253. The examiner can normally be reached on 7:30 to 4:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571/ 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GKV

Gail Verbitsky
Primary Patent Examiner, TC 2800



Application/Control Number: 10/720,650
Art Unit: 2859

Page 19

January 12, 2006